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ANNUAL REPORT
of the
ROYAL ONTARIO MUSEUM OF ZOOLOGY
AND PALAEOLOGY

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PREPARED FOR THE MUSEUM BOARD OF DIRECTORS

1952-53



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ROYAL ONTARIO MUSEUM
OF ZOOLOGY AND PALAEOLOGY

Annual Report for 1952-53
Prepared for the Museum Board of Directors

INTRODUCTION

At one time the primary function of a museum was to display, in rather crowded and poorly illuminated galleries, "peculiar" objects which, in the case of Zoology, pertained to foreign animals as well as those which may be classified as "natural history oddities". The trend during the last century, however, has been to emphasize research collections and the work of the gallery is now primarily concerned with educational displays illustrating various zoological and palaeontological facts. Although most of our Divisional research collections have been brought up to date, we cannot boast of such accomplishment in our galleries. The visitor will still find rows of animal objects crowded together and accompanied by a scientific label, or one marked "temporary label". It is our sincere hope that eventually our public galleries will be devoted entirely to exhibits which will explain, by means of proper labels written in lay language, and objects, the various scientific facts which have been discovered in our particular field of research.

As I have mentioned above, the present-day Museum of Zoology and Palaeontology is primarily interested in research collections. Such research collections are of great value to all scientists working in the field of systematics, taxonomy and distribution. It is the function of our Museum to classify the various kinds of animals in a correct phylogenetic series so as to show their relationships. It is also the function of our Museum to study these various kinds of animals so as to discover any differences that may be present and in this way add not only to our descriptive knowledge of a given species but also discover species which are new to science. Finally, it is our function, particularly in the field of Zoology, to study the geographical distribution of the species of animals in North America with particular attention to Canada. Since the inception of this Museum the research collections have grown enormously, both in number of specimens and in their importance to other research institutions throughout the world.

At the present time we have on our staff four full-time research scientists with university degrees. It is my sincere hope that in the years that lie ahead we will be able to add to our staff other full-time university trained scientists who will continue the valuable work of building up our research collections, as well as carrying on their particular phases of research.

In order to allow the scientific staff sufficient time to devote to their studies and research a ruling was introduced prohibiting telephone calls or personal visits during the afternoon period from 1.30 to 4.30 p.m. This has proved to be of great assistance as indicated by our list of publications and the nature of the research work which has been carried out.

Dr. W. B. Scott is Curator of the Division of Ichthyology and Herpetology. This Division is concerned with the systematic, taxonomic and distributional problems pertaining to the various kinds of fish, amphibians and reptiles to be found in Canada. For many years Dr. Scott has laboured under great difficulties. He has had to use antiquated wooden cupboards which were most certainly not intended for the storage of alcoholic specimens. It is in the interest of our Museum to improve the conditions in this Division, particularly in view of the importance of our Canadian fisheries. It is for this reason that I have decided to obtain suitable

metal storage shelves for housing this important research collection. It is my hope that these changes will be completed during the next university year. In order to do so, however, it will be necessary for me to curtail much of the activity in the other scientific Divisions. I feel certain that the Curators will be willing to cooperate with me in bringing about this important change.

Our research collections are now well known throughout the world. Research workers are continually calling upon us for information and the loan of specimens. Our curatorial staff, during the past year, has contributed many important scientific papers and popular articles. In addition, the Curators have been actively engaged in writing books of a popular nature.

The Canadian Department of Fisheries, in cooperation with our Museum, is sponsoring an outstanding exhibit dealing with fish and fisheries. I do not believe there will be found a finer exhibit dealing with this phase of Zoology anywhere in the world. I wish to take this opportunity to thank the Canadian Department of Fisheries, and particularly Mr. Fred Wooding, Director of Information and Educational Service, for the great interest which has been taken in this exhibit and for the work which has been done in making this most important exhibit possible.

During the past year Mr. E. B. S. Logier's book, dealing with the amphibians of eastern Canada, was published by the Clarke, Irwin Co. Limited. At the present time a manuscript dealing with the Odonata of Canada, written by Dr. E. M. Walker, is in the process of publication. I wish to thank the Carling Breweries Limited for their generous support of our publications program, which has made possible the publication of these important contributions to science.

The importance of our research collections and the work which is being carried on are described in detail in the reports which follow. In this connection I wish to take this opportunity to thank the members of the staff for the work which they have done so well during the past year.

F. A. Urquhart,

Director.

DIVISION OF VERTEBRATE PALAEONTOLOGY

Associate Curator - L. Sternberg
Senior Technician - R. R. Hornell

An expedition to Upper Devonian fish localities of Quebec was conducted by the Associate Curator assisted by Mr. Gordon Edmund, a graduate student specializing in Vertebrate Palaeontology. A collection of early fossil fishes, including several varieties, was obtained. A further collection of fossil fishes was made from the Carboniferous shales near Albert Mines, New Brunswick. Visits were made to a fossil tree locality at Joggins, Nova Scotia, and to a locality near Parrsboro, Nova Scotia, where a number of Amphibian footprints were collected.

Three specimens of fossil fish, collected in Brazil, were donated by Mr. S. C. Goering, 24 Lowther Ave., Toronto. A skull and bones of the feet of a three-toed Miocene horse were obtained from the National Museum, Ottawa, on an exchange.

A skull of an Armoured Dinosaur has been prepared by the Senior Technician. Many bones of this dinosaur have been removed from rock which is exceptionally hard. A great deal of preparation has been done by the Associate Curator on the collections of fossil fish made during the summer. Plaster casts were made from latex molds on loan from Mr. D. Baird of the Museum of Harvard University. These consisted of a number of Amphibian footprints and a complete set of footprints of a small dinosaur.

Two dinosaur skull casts were sent to Yale University in exchange for material received in 1943. The same number was sent to the Los Angeles County Museum as a part payment for material received in 1936-37.

The Associate Curator, assisted by the Secretary and the Librarian for Palaeontology, has made a completely new set of index cards for more than 3,500 books, separates and articles dealing with Vertebrate Palaeontology for our divisional library. Three hundred and seventy separates were added to the divisional library by donation, exchange and purchase. A rare, unbound volume containing forty-one articles on the "Fossil Vertebrates in the American Museum of Natural History of New York" published in 1898-1903 was obtained by exchange. This completes our set of eighteen volumes.

Mr. Gordon Edmund, our graduate student who is studying at Harvard, spent a month in the Red Beds of Texas with Dr. A. S. Romer and party collecting fossils. This was a valuable experience and essential for his studies.

The Division has been called upon for information regarding the technique of molding and casting, using liquid latex and other materials. Such information has been given to sculptors and industrialists. Information regarding the collecting and preparing of fossils was given to Father Vincent, teacher of Geology, St. Anthony College, Edmonton, Alberta. A number of classes and groups was taken into the work rooms and some of the techniques of preparation explained to them. Dr. Karl P. Schmidt, of the Chicago Museum of Natural History, was a noteworthy visitor to this Division. Dr. L. S. Russell made a number of visits in connection with the research he is doing on material collected by us in the past. The Associate Curator attended the three-day meetings of the Society of Vertebrate Palaeontology, held at Boston and Cambridge, Mass. An invitation was extended to the Society to meet in Toronto, along with the Geological Society of America. Two of the three days of the meetings are to be spent in the rooms of the Division of Vertebrate Palaeontology.

DIVISION OF MAMMALOGY

Curator. - R. L. Peterson

Research Assistant - S. C. Downing

Technician - L. A. Walden

A total of 560 specimens was received during the past year, of which the Department of Lands and Forests was responsible for the greatest number, including several valuable fur-bearers. Other important donors were: J. Bristol Foster, Toronto; A. T. Cringan, Sioux Lookout; H. F. Morris, Toronto ; George Francis, Toronto; A. A. Outram, Leaside; H. McQuarrie, Gore Bay.

<u>Nature of Specimen</u>	<u>By Donation</u>	<u>By Staff Collecting</u>	<u>By Exchange</u>	<u>By Purchase</u>	<u>Totals</u>
Unprepared	99	11			110
Partially prepared	289	109	29		427
Prepared	3		20		23
Totals	391	120	49		560

During the year 1,180 specimens were prepared and 1,486 were catalogued and added to the permanent research collection. The backlog of material awaiting attention has now been reduced to the point where cataloguing and final processing approximately equal the number of new accessions. The inventory of the collection has now been completed, except for a few foreign groups. The entire separates collection of publications has been completely indexed and brought up-to-date for the first time since its establishment. Considerable progress was made on the Bibliography of Mammals which includes references to a great majority of published works. It is anticipated that this project will be brought up-to-date by the end of the coming year. Assistance for this work was provided by the Research Council of Ontario.

<u>Preparation</u>	<u>Registration</u>
Skins	50
Hides (prepared for tanning)	16
Skulls	1,100
Skeletons	14
	1,180
	All specimens
	1,486

During the past year three scientific papers by the Curator have been published. A fourth (Studies of the Food Habits and the Habitat of Moose in Ontario) is in press in the Museum's Contribution Series.

A study of geographic variation in North America red foxes (Vulpes fulva) was carried forward.

Preliminary studies were carried out by the Curator on the following Canadian species: Tamiasciurus hudsonicus, Clethrionomys gapperi, Phenacomys intermedius and Thomomys talpoides. In the case of the last mentioned, the Curator is collaborating on a review of the Alberta forms with Dr. J. E. Moore

of the University of Alberta, and with Dr. R. M. Anderson, Emeritus Curator of Mammals of the National Museum of Canada, for a review of the British Columbia forms.

A paper on the identification and variation of the European hare in Ontario is now in manuscript form, a project carried out in collaboration with Dr. Keith Reynolds of the Ontario Department of Lands and Forests.

The Research Assistant continued work on the systematics and distribution of Peromyscus in Canada.

In connection with research by other institutions, specimens were sent on loan to the Museum of Natural History of the University of Kansas. The following institutions kindly provided the loan of specimens for our own research: American Museum of Natural History, Minnesota Museum of Natural History, Museum of Comparative Zoology (Harvard), University of British Columbia, British Columbia Provincial Museum, Montana State University, and the National Museum of Canada. Research was also carried out by the Curator at the United States National Museum.

The Curator served as Recording Secretary of the American Society of Mammalogists. In cooperation with the Ontario Department of Lands and Forests the Curator presented a series of lectures on mammals at the Ranger School near Dorset.

The Division continues to offer many services to various individuals, institutions and other organizations. A great many specimens were sent on loan for demonstration and lecturing purposes. The identification of specimens for other scientists, for legal purposes, for students and interested individuals, continues to increase.

The Curator conducted the Mammalogy section of Course 25 in Zoology; served on graduate examining committees; and assisted several students in connection with their post-graduate research. Utilization of the Division's library and literature index continues to increase.

DIVISION OF ORNITHOLOGY

Curator - L. L. Snyder

Research Assistant - J. L. Baillie

Senior Technician - C. E. Hope

A most useful addition to the research collection came during the year as a donation from Dr. Paul Harrington, of Toronto. It consisted of 507 carefully prepared and labelled sets of bird eggs, of which nearly half were accompanied by nests. Other donations of prepared material included 134 specimens of Alberta birds from Mr. O. D. Boggs. Thirty-nine specimens of waterfowl were received from the joint collection of Messrs. H. J. McQuarrie and W. R. Ritching. Two Passenger Pigeons were acquired for the Museum by Mr. Paul Hahn.

Comparative material collected by the Research Assistant and Senior Technician of the Division totalled 308 skin specimens and a few nests and eggs. The collection represents a selected series secured along the Transcontinental Highways, Earlton north to Cochrane and west to the Hearst area.

Certain desiderata were obtained by purchase and exchange. These include 142 bird skins, mostly from Arizona; 30 Australian specimens from the Natural History Museum in Victoria; 20 European specimens from the Naturhistorisk Museum in Aarhus, Denmark; and 12 specimens from Washington State from Mr. J. B. Hurley.

A total of 150 birds was received in the flesh from the Ontario Department of Lands and Forests. A considerable percentage of these was preserved as additions to our series demonstrating moults and plumage sequence and to fulfill the requirements of other museums through exchange.

The table below presents the total of accessions during the year, not all of which were preserved or retained for the study collection:

<u>Nature of Specimen</u>	<u>By Donation</u>	<u>By Staff Collection.</u>	<u>By Purchase</u>	<u>By Exchange</u>	<u>Totals</u>
Unprepared	367	28		3	398
Prepared	192	330	142	101	765
<u>Nests and Eggs</u>	<u>549</u>	<u>5</u>			<u>554</u>
Totals	1,108	363	142	104	1,717

Preparation of specimens of the several kinds used in systematic studies - skins, skeletons, nests and eggs - in the laboratory and in the field, have engaged most of the attention of the Senior Technician during the year. At the present stage of development of the research collection, with each specimen assessed on the basis of available space and particular need, the quantity requiring preparation is still considerable, as shown by the table below.

It is gratifying to report a notable advance in the cataloguing of previously unregistered material. In this work the Research Assistant has had the aid of the Senior Technician and also extra help through a special fund which provided part-time workers. The table below gives a larger total of registered specimens than has been reported for several years.

The addition of two cabinets in the bird range approximately equals the accommodation necessary for current accessions. Minor re-arrangements of the collection have been necessary during the distribution of newly registered material. A total of 343 skins from an historic collection was given special cleaning treatment before being distributed. The two type-A cases built are standard in dimensions but, to reduce cost, employ masonite and modern glue instead of sheet-metal and solder. It will require time to test this modification.

<u>Preparation</u>		<u>Registration</u>	
Bird skins (from the flesh)	368	Bird skins	2,296
Bird skins (dry)	39	Skeletons	37
Articulated skeletons	5	Nests and Eggs	427
Disarticulated skeletons	8		
Miscellaneous	<u>29</u>		<u> </u>
Total	449	Total	2,760

A study of certain Canadian races of Agelaius phoeniceus, in part a project of the late E. D. Lapworth, was expanded somewhat by the Curator and a short paper on the subject was prepared for publication. The Curator completed an avifaunal report pertaining to a section of western Ontario contiguous to Manitoba. This report is based on field work of the Division's staff carried out during several summer seasons between 1937 and 1949. Also during the current year the Curator has devoted attention to studies of Arctic birds, the subject of a field guide in the course of preparation. A minor note and a short paper dealing with the distribution of Gavia adamsi and Colymbus grisegena, respectively, have been prepared for publication. Another study and report concerns an apparently unique hybrid duck, Bucephala clangula x Bucephala islandica. As regional editor for Audubon Field Notes, the Division's Research Assistant gathered data and prepared quarterly reports on birds for the Ontario-western New York area.

The Senior Technician has carried forward the work of mapping the distribution of summer birds in Ontario. An estimated 2,960 entries have been made during the year.

All members of the Division have collaborated in checking and revising manuscripts for the forthcoming "Check-List of North American Birds" which is being prepared by the American Ornithologists' Union.

It has been our privilege to aid the researches of ornithologists of other institutions during the year. Such assistance has been rendered by supplying data from our files, by lending specimens, and by providing facilities and access to the collection in the bird range. For example, data on the history, distribution and frequency of Vermivora chrysoptera and Vermivora pinus were forwarded to a worker at the University of Michigan; specimens of Caprimulgus were lent to the United States National Museum; records on Alberta birds were made available to a western ornithologist working at the Museum; and specimens of Oxyura jamaicensis, from our collection and material borrowed from other museums, were made available to a biologist of the Ontario Department of Lands and Forests working at the Museum.

The Curator has served as member of Council of the American Ornithologists' Union; acted as Chairman of the Union's Nominations Committee; and attended the annual meeting of the Society in Baton Rouge. Also, he served on the Editorial Committee of the Royal Canadian Institute and on the Special Committee appointed by the Toronto City Council to consider the establishment of a zoological, botanical and horticultural garden.

The Research Assistant has served on the American Ornithologists' Union Committee on Student Membership.

Lectures, given by the staff, to groups other than University classes, totalled 35.

The Ornithological portion of Zoology 25 was given by the Curator during the year. Some time was devoted to consultations with other Zoology students undertaking particular projects concerned with birds.

The Senior Technician has added a number of specimens to the teaching collection during the year. These are special preparations designed to resist repeated handling.

DIVISION OF ICHTHYOLOGY AND HERPETOLOGY

Curator -- W. B. Scott

Associate Curator - E. B. S. Logier
Technician - E. H. Taylor

The general policy of the Division in recent years has been to organize and arrange the collection as efficiently as possible within the limits of the inadequate storage facilities. This general plan was continued during the past year. Although the collection is overcrowded, it is pleasing to know that using the same floor space now occupied, the holding or storage facilities could be more than doubled. The efficiency of the storage would be similarly increased. This could be brought about by the substitution of steel shelving for the wooden cupboards, which, in addition to the other advantages would reduce the fire hazard which accompanies alcohol storage. It is hoped that this imperative change in storage facilities would be started during the next University year.

The study collection of fishes has been enlarged during the year by the addition of valuable material from many parts of Canada, from Ungava and New Brunswick on the east to Aklavik on the west. Collections of fishes have been received from the Fisheries Research Board of Canada, Ontario Department of Planning and Development, Ontario Department of Lands and Forests, University of Saskatchewan and the Saskatchewan Government, as well as from many private individuals. The Division wishes to acknowledge with sincere thanks the donations by these agencies and individuals.

Approximately 500 lots of fishes were catalogued and incorporated into the study collection during the year.

Rearrangement of the alcoholic collection of amphibians and reptiles has been carried forward to cover 12 genera and 26 species.

A limited amount of field work was conducted. Staff collections were made in Lake Simcoe and in the Temiskaming and Cochrane districts of Ontario and also in the salt and freshwaters of southern New Brunswick.

Reports of research activities, particularly with respect to the Lake Erie cisco (*Leucichthys*) and the blue pikeperch or blue walleye (*Stizostedion vitreum glaucum*), were necessarily curtailed due to other activities, such as technical advice and assistance in the preparation of the smallmouth black bass film for the Carling Conservation Club; the preparation of a handbook of the fishes of eastern Canada; and, in cooperation with the Division of Art and Exhibits, the preparation of a new Gallery of Fishes. In addition, the Curator conducted a graduate course in Systematic Ichthyology for the Department of Zoology, University of Toronto, and an informal course in general fishery biology for members of the Federal Department of Fisheries who were stationed in Toronto.

Approximately 100 lots of fishes, amphibians and reptiles, involving over 1,500 specimens, have been identified for various institutions and organizations including the universities of Montreal, Western Ontario and Saskatchewan, the Ontario Department of Lands and Forests, the Canadian Wildlife Service, the Saskatchewan Department of Natural Resources and Industrial Development, and numerous private citizens.

The Division has cooperated with the Ontario Department of Lands and Forests and the Research Council of Ontario with regard to fisheries research on the Great Lake. In this connection a paper entitled "The Lake Erie Fishery" was presented by the Curator at a Great Lake Symposium sponsored by the Research Council of Ontario. In addition, a paper entitled "Aging of Fishes" was presented by the Curator at the Annual Meeting of the Ontario Federation of Commercial Fishermen.

DIVISION OF ENTOMOLOGY

Curator - F. A. Urquhart

Honorary Curator - E. M. Walker

Assistant Curator - G. B. Wiggins

During the past year Mr. G. B. Wiggins, M.A., was added to the divisional staff as Assistant Curator. This is indeed a most important appointment. Although insects represent the largest group, in number of species, of all animals, yet, for the past number of years, the Museum has had only one trained scientist making a study of insects. We now have, in addition to Mr. Wiggins, Dr. E. M. Walker, Professor Emeritus of the University and Honorary Curator of the Division, who is making a study of the dragonflies of Canada; and the Director, who at the present time is acting as Curator of the Division and who, in his spare time, is making a study of the Orthoptera of Canada and initiating a systematic collection of Plecoptera. Although this represents a very small staff for such an important group of animals, nevertheless we feel that an important step forward has been made.

It is our sincere hope that within the next few years we will have initiated the studies of many groups of aquatic insects. Mr. Wiggins will be studying the Trichoptera of eastern Canada and, it is hoped, he will eventually expand his studies to include all of Canada. As a result of his efforts during the past year the Museum's collection of Trichoptera increased from approximately 1,000 specimens to over 10,000 specimens. This collection was made from but five particular localities, namely the Lake Simcoe area, the Bruce Peninsula, Parry Sound, Durham and Peel Counties, and represents fourteen of the seventeen families which one would expect to find in the Province. A number of the species included in the collection represent new records for Ontario and Canada.

Dr. E. M. Walker, we are pleased to report, has now completed the manuscript of his book on the Zygoptera of Canada and Alaska. This is a most important contribution. In this noteworthy volume will be found all of the scientific facts concerning Canadian Odonata known to one of Canada's foremost entomologists. We wish to take this opportunity to congratulate Dr. Walker on his very fine contribution to the field of research. We sincerely hope that it will be possible some day for Dr. Walker to complete the manuscript of a book dealing with the Anisoptera of Canada.

The Curator is working on a book dealing with the Orthoptera of eastern Canada. This particular book is intended to assist those who wish to identify the various species to be found in eastern Canada. It is the Curator's sincere hope that the manuscript will be completed during the next University year.

During the past year both type specimens and collections of several groups of insects and other invertebrates have contributed to the studies of research workers in various parts of North America. This is one of the most valuable services the Museum collections can fulfil, and it is hoped this part of our programme will be expanded.

Of the specimens in the alcoholic collection of invertebrates other than insects, the numerous type specimens of the Huntsman Collection of Ascidians have been provided with new storage facilities. A card index has been set up for all type specimens of invertebrates other than insects, as well as for the type specimens in the fossil insect collection.

As a public service the Division has identified many specimens submitted not only by other institutions, Government departments and universities, but also by the layman interested only in some of these "peculiar creatures". This is a service which is to be expected of any Museum but one which should not occupy too much of the research worker's time. This has been accomplished, to a certain extent, by restricting telephone calls and personal visits to the morning period.

The Curator presented the Insect portion of Course 25 to the second year Honor Biology students; took part in examining committees for students in the Graduate School; and directed the research work of one student enrolled in the Graduate School for the degree of Doctor of Philosophy.

DIVISION OF INVERTEBRATE PALAEONTOLOGY

Curator - M. A. Fritz

Research Assistant - J. Monteith

Technician - D. H. Monteith

The Division's collection has been increased during the year by 2,346 specimens. Of these 170 were donated, the remainder were collected by the staff and associates. Our donors include: C. H. Cole, Toronto; Dr. A. DeVos, Department of Lands and Forests, Maple; Dr. E. A. Frederickson, University of Oklahoma; C. R. Gray, Department of Lands and Forests, Cochrane; Dr. B. F. Howell, Princeton University; B. A. Liberty, Geological Survey of Canada; Dr. G. O. Raasch, Geological Survey of Illinois; A. G. Edmund, Harvard University.

The following is a summary of accessions:

	<u>By Donation</u>	<u>By Staff Collection</u>	<u>By Purchase</u>	<u>By Exchange</u>	<u>Totals</u>
Anthozoa	1	60			61
Stromatoporoidea	2	4			6
Graptozoa		69			69
Bryozoa		132			132
Brachiopoda	35	1,546			1,581
Pelecypoda		40			40
Gastropoda		58			58
Conularia		155			155
Cephalopoda		18			18
Trilobita	6	22			28
Branchiopoda	125				125
Primitive Land Plants		64			64
Amber	1				1
Rock Samples		8			8
Totals	170	2,176			2,346

The preparation of fossils for study and exhibit has been carried on in the usual routine manner. Such preparation has included microscopic sections, cutting, grinding, polishing, casting, etc.

The maintenance of the collection has been chiefly in the hands of the Research Assistant, assisted by the Technician. About half of the storage collection has been renovated by the Technician during the year; it is now in better shape for examination and demonstration.

A record of registered specimens follows:

Porifera	1
Anthozoa	11
Crinoidea	9
Echinoidea	5
Brachiopoda	147
Pelecypoda	103
Gastropoda	140
Cephalopoda	94
Trilobita	22
Eurypterida	2
Plantae	<u>11</u>
Totals	545

The project concerned with the Devonian of the Moose River Basin, begun in 1950 under a yearly grant from the Advisory Committee on Scientific Research, University of Toronto, is nearing completion. A party visited the region again last Autumn. Results of the investigation will be ready for publication during the coming year. Included is a discussion of the lithology and stratigraphy of the area, along with a description of the plants, corals, and stromatoporoids; among the latter group a new genus is described.

Mr. B. A. Liberty, of the Geological Survey of Canada, spent a few weeks here in March studying Middle Ordovician Bryozoa. Mr. Liberty's research deals with species west of the Frontenac axis; these faunas were being considered in relation to those east of the axis, a study which is being carried on by the Curator.

A new species of Bryozoa, Rhopalonaria lambtonensis Fritz has also been described.

Assistance from the following is gratefully acknowledged: Dr. E. A. Frederickson, University of Oklahoma; Mr. J. O. Gorman, Hydro-Electric Power Commission, Toronto; Jones and Laughlin Steel Corporation, Pittsburgh; Dr. M. M. LeCompte, Institut Royal des Sciences Naturelles de Belgique,

Brussels, Belgium; Dr. Alexander Petrunkevitch, Osborn Zoological Laboratory, Yale University.

The Curator attended the November Meeting of the Geological Society of America, Boston, and the Royal Society of Canada in London in June.

The Curator was appointed to the Council of the Geological Association of Canada and accepted the editorship of the "Proceedings" of that organization. She was also appointed to the National Advisory Committee on Stratigraphy and Palaeontology.

A monthly exhibit has been instituted with apparent success, in the Gallery, including to date the following: Giant Trilobites, Chain Coral, Coal Plants, Fossil Pearls, The Nautilus, fossil and recent, Rain Prints.

DIVISION OF ART AND EXHIBITS

Chief - T.M. Shortt

Artist - A. Reid

Artist - E. Thorn

Three maps and three graphs were prepared for scientific publication by research workers of the Museum's research Divisions.

The Division's main effort during the past year has been directed towards the preparation of the "Canadian Fish and Fisheries Exhibit", a project undertaken in collaboration with the Dominion Department of Fisheries. Delivery has been taken of some thirty new showcases, especially designed for the exhibit. Dressing of these cases is now in progress. Nearing completion are displays treating the body form, locomotion, colour, reproduction, development and gross classification of fishes. Work is proceeding on the installation of the systematic series of Canadian fishes occupying fifteen cases. A collecting trip was made to St. Andrews, New Brunswick, by Messrs. Reid and Thorn, to obtain specimens for habitat groups of pelagic fish and ground-fish. A number of casts have been made from the materials collected and the groups are now being designed and assembled. A tentative opening date has been set for April, 1954.

The discovery by a South African ichthyologist, in December, 1952, of a second specimen of a primitive fish called the Coelacanth, which until 1939 had been known only in fossil form, received considerable notice in press, radio and television. The Museum was able to present an exhibit on this fish within a few days of the discovery of the new specimen. A model of a Coelacanth was displayed along with a fossil specimen from the collection of the Division of Vertebrate Palaeontology.

Other temporary or seasonal exhibits produced during the past year included "Pine and Evening Grosbeaks", "Aplodontia", "Horseshoe Crab", "Casting of Tracks in Snow", "Gnatcatcher's Nest" and "Giant Pacific Slug".

Two displays advertising Museum publications were prepared and a special exhibit was presented in the ground floor rotunda on the occasion of the Carling Conservation Club's "Museum Night".

Some interesting fishes were shown in the aquarium. These included Tiger-Knife fish, Piranha, and a number of local species such as Black Crappie, Yellow Perch, Bass, Sunfish and Bowfin.

Mr. Reid developed a new technique for the casting of fishes to be used in the Canadian Fish and Fisheries exhibit habitat groups. The technique employs the use of a new composition rubber material that produces strong, flexible casts.

Information on techniques and case design was given to the Chatham Entomological Laboratory, The Natural History Museum in Enschede, Holland, and the Ontario Department of Lands and Forests.

A specimen of timber wolf, secured through the Department of Lands and Forests, was presented to the Cleveland Museum of Natural History.

ZOOLOGICAL LIBRARY
Librarian - Eileen McClure.

During the year 1,664 publications were received and catalogued, bringing the total holdings of the library to 59,147.

	<u>By exchange and donation</u>	<u>By purchase</u>	<u>Total</u>
Bound books	11	29	40
Unbound periodicals	1,033	168	1,201
Separates and reports	393	30	423
Totals	1,437	227	1,664

The work of cataloguing the separates collection was completed this year, and the separates are now housed in the Divisional libraries where they are immediately available to the staff members. This was the first step in a program designed to build up reference catalogues in the Divisional libraries. A further step in this plan was begun this year. Since the serial publications in the library are catalogued by title only, it was decided that a more complete coverage of the material in them could be attained by means of an author card for each article, which cards would be filed in the Divisional libraries. This work is nearing completion.

With the amalgamation of the Museums of Zoology and Palaeontology it became necessary to revise the List of Publications to include all publications of the two former Museums, and this revised list was published during the year. Inter-library loans were carried out with other libraries, and new exchanges were arranged with several institutions. The sale of Museum publications continued at the same level as during the previous year.

PALAEONTOLOGICAL LIBRARY
Librarian - Elvira N. Hammell

Publications received for the year totalled 793; of this number 475 have been catalogued. The total number of publications entered to date in the register is 21,388.

	<u>By exchange and donation</u>	<u>By purchase</u>	<u>Total</u>
Bound books	10	5	15
Unbound periodicals	266	21	287
Separates and reports	445	47	491
Totals	721	73	793

For the majority of publications listed under Exchange and Donation we are indebted, for the most part, to Mr. L. Sternberg and Mr. Gordon Edmund, who were able to secure this literature for the library. The usual routine work of cataloguing and filing has gone on regularly during the year. The revision of the catalogue for the Vertebrate Palaeontology Divisional Library has been almost completed.

During the past year the public has shown continued interest in our Museum publications, the sales of which amounted to 498.

Through inter-library loan, several publications have been secured from the Geological Survey of Canada at Ottawa for staff use. In addition, we have lent, upon request, literature to the Imperial Oil Limited in Calgary.

LIST OF PUBLICATIONS

1952-53

- Baillie, J. L. - " The Sparrow-Finch Family" (Section 2).
Can. Nature, vol. 14, no. 3, 1952, p.108.
- "Fifty-Second Christmas Bird Count, Toronto"
Audubon Field Notes, vol. 6, no. 2, 1952, p.49.
- "Winter Season . . . Ontario-Western New York Region".
Ibid., vol. 6, no.3, 1952, pp.193-194.
- "American Vultures, Hawks, Ospreys and Falcons".
Can. Nature, vol. 14, no. 4, 1952, p.128.
- "Spring Migration. . . Ontario-Western New York Region".
Audubon Field Notes, vol. 6, no. 4, 1952, pp.244-245.
- "Christmas Bird Census - 1951 . . . Toronto, Ontario."
Can. Field-Naturalist, vol. 66, no. 2, 1952, pp. 61-62.
- "Nesting Season . . . Ontario-Western New York Region".
Audubon Field Notes, vol. 6, no. 5, 1952, pp.279-280.
- " Bird Watching".
Canadian Teacher, vol. 57, no. 6, 1953, pp.11-14.
- "Fall Migration . . . Ontario-Western New York Region".
Audubon Field Notes, vol. 7, no.1, 1953, pp.13-15.
- "Alcids, Gulls and Terns".
Can. Nature, vol. 15, no.3, 1953, p. 100
- Downing, S. C. - " The Muskox".
Can. Nature, vol. 15, no. 1, 1953, pp.24-25.
- "Mammals of the Mountains".
Can. Nature, vol. 15, no. 2, 1953, pp. 71-73.
- Peterson, R. L. - (Review) "Algen" , Studier, jakt. och vard:
Folke Skuncke, P. A. Norstedt and Soners, 1949.
Forlag/Stockholm, Sweden.
Journ. Wildlife Management, vol. 16, no. 2, pp.218-219.
- A Review of the Living Representatives of the genus Alces.
Contrib. Roy. Ont. Mus. Zool. and Palaco.
no. 34, pp. 1-30.
- "Early records of the Red and Gray Fox in Ontario".
Journ. Mamm., vol. 34, no. 1, pp. 126-127.
(with R. O. Standfield, E.H. McEwen and A.C. Brooks).

- Scott, W.B. - " Records of the Western Lake Chubsucker, Erimyzon succetta kennerleyi, from Ontario, Canada".
Copeia, no. 3, p. 203.
- Scott, W.B. and
B. Kooyman - " A Northern Record for Aplodinotus grunniens".
Can. Field-Naturalist, vol. 66, no. 3, p. 89.
- Snyder, L.L. - "On Eastern Empidonaces with particular reference
to Variations in E. traillii".
Contr. Roy. Ont. Mus. of Zool. and Palaeo.,
no. 35, 1953, pp. 1-26.
- Urquhart, F.A. and
J.R. Beaudry - " A recently Introduced Species of European Grasshopper".
Can. Ent., vol. 85, no. 2.
- Walker, E.M. - " The Lestes disjunctus and forcipatus complex".
Trans. Amer. Ent. Soc., Aug. 8, 1952.

